

Cooperative and competitive attitudes in 6-to 10-month-old twins' intra-pair game-playing

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Summary

Studies on cooperation and competition have focused mainly on young children. This longitudinal naturalistic study examined the cooperative and competitive attitudes in six pairs of 6- to 10-month old dizygotic twins (DZ) during dyadic play. The findings suggest that DZ twins are competent play partners during their intrapair interactions. They showed a slight preference to play with each other than with objects. No gender differences were observed. There were more episodes where the first born was more aggressive and less compliant than the second born.

Introduction

There are mainly two approaches in the study of cooperation and competition among children. The first one is based on anthropological observations of children of different ethnicities. Intercultural studies have shown that Mexican children aged 7-9 were more cooperative than Mexican-American children, while Anglo-American children were less cooperative (Kagan, & Madsen, 1972). Madsen and Shapira (1977) found that 7-9 year old Kibbutz children were more cooperative than children from West Germany, while USA children were the most competitive. In a more recent study Sparkes (1991) showed that Chinese girls aged 3-4 were more competitive than American pairs of girls. Pairs of different sex were less cooperative than pairs of same sex (Sparkes, 1991). The second approach is based on the developmental social genetics perspective and suggests that those who are genetically similar are more cooperative. Segal, Connely and Topolski (1996) found that 8-12 year old monozygotic twins (MZ) are more cooperative in their intrapair interactions than with unfamiliar peers. There

are contradictory findings on how cooperative or competitive MZ and DZ are. Loh and Elliott (1998) found that MZ 7-9 year old twins are not more cooperative than DZ, while Segal and Herschberger (1999) found that 11-83 year old MZ are more cooperative than DZ twins. In a recent study DiLalla (2005) found that 5-years old twins exhibit less pro-social behaviour when they play with same sex peers in comparison to non-twins but they are not more aggressive than non-twins.

There is no study, as far as we know, regarding the cooperative and competitive behaviours in very young twin infants in a naturalistic context. The aim of this naturalistic and longitudinal study is to explore: a) cooperation and competition between DZ twins, b) sex differences, c) birth order differences and d) the use of objects in twins' intrapair playful sessions. It was expected a) that different sex DZ pairs are less cooperative than same sex pairs, b) second born DZ twins are more cooperative than their first born co-twins and often obey to them and c) playful sessions without objects were expected to be more frequent than sessions with objects.

Methods

Participants

The sample consisted of 3 pairs of DZ twins of different sex and 3 pairs of DZ twins of the same sex (2 pairs of boys and 1 pair of girls).

Procedure

Video recordings were made at 30-day intervals (5 temporal points) from the 6th till the 10th month. The first author was videotaping the 7-minutes of natural twins' intrapair interactions. The only instruction given to the parents of the twin infants was "Please, let your babies play as they always do with each other, wherever they are used to play or wherever they like to lay". As playful session was defined as the period in which twins were both playing a game with a certain "subject" that they were mutually enjoying (Semitekoulou, 2002). Twins' emotions before, during and after the

session, physical proximity, game-playing introduction (who starts the game), the kind of game (with or without objects), communicative behaviour, motion/stability, duration of play, were analyzed following the protocol introduced by Semitecolou (2002), while their domineering and complying behaviour, joyful play, prosocial and aggressive behaviour were assessed on a 5-point, Likert-type scale introduced by DiLalla (2005).

Results

Fifty-six (56) playful sessions were observed between the 6 pairs of twins during the 6th and the 10th month, 30 sessions between different sex twins and 26 between same sex twins. The emotions during the play sessions were set as the criterion for cooperation. If both twins exhibited positive emotions (interest, pleasure, both pleasure and interest, joy) they were considered to have a cooperative attitude.

No difference in cooperation between the same and different sex pairs was observed. There were only 6 out of 56 no-cooperation episodes, 3 among same and 3 among different sex twins. Therefore, our hypothesis that different sex twins are less cooperative was not verified. In these no-cooperative sessions the second born was the one who did not want to cooperate. For this reason our hypothesis that second-born twins are more cooperative and obedient could not be verified. During the play session the twins had the option to play together either with or without objects. Out of the 56 episodes, 30 episodes were without objects, 23 were with objects and 3 were mixed. Although twins showed a slight preference to play without objects this preference was not statistically significant.

The twins' domineering, complying, pro-social and aggressive behaviours were also analyzed as a function of birth order. McNemar's test revealed that out of the 56 episodes, there were 22 (39%) where the first born was dominant while the second one was not, compared to only 5 episodes (9%), where the second born was the dominant one ($p < .002$). Regarding compliance there were only 3 episodes (5%) where the first born complied while the second did not, compared to 10 episodes (18%) where the second born complied while the first one did not ($p = .09$). However, in all

the remaining 44 episodes none of the twins complied with his/her sibling. Regarding prosocial behavior there were 11 episodes (20%) where the first exhibited prosocial behavior, compared to 5 episodes (9%) where the second did. The difference was not statistically significant ($p=.210$). In the majority of episodes (57%) prosocial behavior was not observed. McNemar's test showed that there was a significantly greater number of episodes where the second born twin was more difficult compared to his sibling (14 vs 2, $p<.004$). Regarding aggressiveness, there were 10 episodes (18%) where the first born was aggressive and 4 (7%) where the second one was, but the difference was not significant ($p=.180$).

Conclusions

The findings suggest that DZ 6-10month old twins are competent play partners during their intrapair interactions and they do not tend to comply with their co-twin. In the vast majority of play sessions they cooperated well with each other and exhibited positive emotions, such as interest, pleasure, pleasure and interest, and joy. This finding verifies the presence of positive feelings in infants' intrapair interactions. No gender differences were observed in cooperation. Cooperation, though, was affected by the combination of dominant behaviours from one twin and the absence of compliance and desire for play by the other. However, it should be noted that dominant behaviours do not necessarily lead to no-cooperation. In 32 of the 56 sessions observed one of the twins was found to be dominant, but only in 6 cases there was not good cooperation.

During intrapair play sessions twins showed a slight preference to play with each other, than to play with objects. Although twins spend most of their time together, they are not bored of each other and this might be a basic component of their relationship. A number of behaviours were observed, like pulling each-others clothes, hair, hands and legs, kicking, hitting, vocal games, swinging their bodies and different combinations of the above. Although some of these behaviours seem to be aggressive, in most cases they were interpreted as playful and led to positive feelings.

The main limitation of this study is the small number of the twin-pairs studied. MZ twins were not included. Our findings cannot be compared with those of similar studies since there is no existing research evidence. This study could serve as an important starting point for the study of cooperative and competitive behaviours in twin infants. There is a need for longitudinal studies to examine the developmental process of these early cooperative and competitive behaviours and their impact on the social and emotional development of twins. Future research should focus on MZ and DZ twins' intrapair game-playing interactions and on dyadic game-playing of twins with unfamiliar same- age peers. Research on the cooperative and competitive behaviour of twins in triadic interactions with their mother is also of great interest.

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